eye. Nevertheless traces of a primitive division into two halves in the *Sidæ*, the *Lyncei*, and the *Estheriæ* enable us to establish unhesitatingly the homology of this apparently single eye of the Cladocera with the paired eyes of the *Cypridinæ*. A further homology is presented when we find in the *Cypridinæ*, besides the large compound eyes, a small, simple, median eye, perfectly similar to that which exists, in addition to the compound eye, in the *Daphniæ*.

The *Cypridinæ* present other peculiarities worthy of mention. As a general rule, the Ostracoda are characterized by the small number of their appendages, as there exist only two, or at most three, pairs of locomotive appendages behind the gigantic maxillæ. In fact, the last pair of feet disappears completely, and the others are converted into organs of manducation. On the other hand, the mandibles are converted into locomotive appendages. The antennæ also serving for locomotion, we find that throughout their whole life the *Cypridinæ* employ the three anterior pairs of appendages as locomotive organs. Now this is exactly the case in all Entomostraca during the *Nauplius*-phase, and furnishes a new argument to be added to those adduced by Fritz Müller in favour of the derivation of all Crustacea from the *Nauplius*-form.—*Siebold & Kölliker's Zeitschrift*, 1865, p. 143.

Remarks on the Anatomy of Tridacna elongata. By M. Léon Vaillant.

Tridacna elongata, Lam., occurs very abundantly in the Bay of Suez, where it is often employed as food; the author has accordingly been able to examine a great number of individuals of this animal.

The retractor muscle of the foot, which is of considerable size in proportion to the protractor, serves in part for the closure of the valves; hence it may be that in those Monomyary Acephala which have an adductor muscle distinctly divided into two parts, the upper portion is to be regarded as representing the retractor of the foot diverted from its normal functions. The byssus of the *Tridacna*, already described by Müller, consists of two parts—one adhering to the bottom of a cavity of the foot, the other uniting this with external bodies; each of these is secreted by a distinct organ,—the former by the bottom of its cavity, the latter by a collection of racemose glands lining a circular groove in the wall of the cavity.

The large notches of the margins of the shells enabled the author to ascertain the force which the mollusk is capable of exerting. He fixed an individual by one of its valves, and suspended a weight to the other. In this way he found that a specimen 21 centimètres in length, of which the valves weighed 1·264 kil., could support a weight of 4·914 kil.; so that it may be supposed that an individual weighing 250 kilogrammes (and these are not uncommon) might at a given moment put out a force of more than 900 kilogrammes.

In the nervous system the branchial ganglia, forming a single mass with no trace of longitudinal division, exhibit transverse furrows bounding two false circumvolutions. A sort of inelastic tendon accompanies the connective extended from the branchial ganglion to one of the buccal ganglia during its passage through the gastro-genital mass; the object of this arrangement appears to be the prevention of the dragging (*tiraillement*) of the nerve when the organ is distended with eggs.

Another remarkable arrangement is to be seen in the passage of the last portion of the intestine through the heart. At the entrance of the intestine into the ventricle there are muscular bundles starting from the wall of the latter and inserted perpendicularly into the wall of the digestive tube; at the moment of contraction these bundles must, by their shortening, tend to draw apart the walls of the intestine, which would otherwise be compressed during the systole, and thus the course of the fæcal matters will not be interrupted.

In these large mollusks the difference between the arteries and veins is very easily seen: the former have a very distinct double epithelial and fibrous wall, whilst the latter are simple sinuses hollowed out in the tissues. All the blood is compelled to traverse an organ of hæmatosis (branchiæ or mantle) before returning to the heart.

The proper temperature of the animal, compared with that of the bottom at which it lives, appeared to be rather high. The temperature registered by thermometers sunk at the point inhabited by the animals was about 63°·5 F. (17°·5 C.); the average temperature of the *Tridacnæ* was 68°·5 F. (20° C.).—*Comptes Rendus*, Oct. 9, 1865, p. 601.

Remarks on the Protective Sheath and on the Formation of the Stem of the Root. By M. R. Caspary.

In preceding memoirs M. Caspary has indicated a layer of very closely approximated cells, placed in a single series in thickness, which exists in stems, roots, and leaves, the vascular system of which it envelopes and protects. He has given it the name of the *protective sheath*, although in certain cases (in *Berberis*, for example) this layer is ruptured during growth, and consequently does not serve to protect the organs which it envelopes. In describing this protective sheath, M. Caspary indicated upon the lateral walls of its cells some darker spots or streaks, which he thought were formed by very small pores. He now again maintains the existence of these spots or streaks; but he has ascertained that they are due to foldings of the walls of the cells, and not to pores. He has observed these folds in the protective sheath of *Ficaria ranunculoides*, Roth, *Elodea canadensis*, Mich., *Brasena peltata*, Peret, and *Charlwoodia rubra*, Planch. When the cells of the protective sheath become thickened, the folds gradually disappear. M. Caspary attributes this change to the elongation of the walls of the cells—an elongation of which he has convinced himself by direct measurements.

Several authors (especially M. Karsten) have regarded this protective sheath as a lignified residue of the layer of cambium which has produced the other parts of the stem; but M. Caspary combats